



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/157,318	09/21/1998	TOSHIAKI KANEMITSU		2295

7590 09/17/2002

FELIX J D'AMBROSIO
JONES TULLAR & COOPER
P O BOX 2266
EADS STATION
ARLINGTON, VA 22202

EXAMINER

COMPTON, ERIC B

ART UNIT

PAPER NUMBER

3726

DATE MAILED: 09/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/157,318

Applicant(s)

KANEMITSU ET AL.

Examiner

Eric B. Compton

Art Unit

3726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,396,787 to Kanemitsu et al.

Kanemitsu et al disclose a method of forming an annular member, comprising the steps of: forming a disc-shaped sheet to have a non-processed portion including an inclined stepped portion (Figure 4); rotating the disc-shaped metal sheet material; pressing the outer periphery of the sheet metal sheet in a radially inward direction, while continuing to rotate the metal sheet material (Figure 1B); thickening the outer periphery axially and without bucking by said pressing (Figure 1C); protruding the outer periphery to either side of the non-processed portion of the metal sheet material (Figure 1D); and forming a peripheral wall protruding to either side of the non-processed portion (Figure 1E).

Regarding claim 2, Figure 1C of Kanemitsu et al shows a thickening operation such that a preliminary peripheral wall is formed having a center portion that is more

outwardly swelled in the center than at the ends. The shape of the outer periphery can be considered arc-shaped.

Regarding claim 3, Figure 1C of Kanemitsu et al shows the thickening operation in which the outer periphery has a bead that can be considered substantially circular. Note, it is inherent that a roller is engaged gradually, therefore the bead begins taking on a substantially circular shape in advance of forming of a preliminary peripheral wall.

Regarding claim 4, Figure 2A-2D of Kanemitsu et al show the metal sheet held between a pair of dies and pressing a forming roller (21) against the outer periphery of the metal sheet. The forming roller and the metal sheet are thereby rotated together.

Regarding claim 5, Figure 2B of Kanemitsu et al shows a thickening operation such that a preliminary peripheral wall is formed having a center portion that is more outwardly swelled in the center than at the ends. The shape of the outer periphery can be considered arc-shaped.

Regarding claim 6, Figure 2D of Kanemitsu et al shows a finishing step that results in a protruding peripheral wall on either side of the clamped portion in a predetermined shape.

Regarding claim 8, Kanemitsu et al teach first forming the non-processed section into a stepped portion as disclosed in column 2, lines 61-67: "First there is prepared a steel plate 1 the peripheral portion of which has a flat section as shown in **FIG. 1A**. Generally, the steel plate 1 is a disc-like plate as shown in **FIG. 3** and has a thickness of 2.0 mm for example. Alternatively, the steel plate 1 may be a flanged cup-shaped member as shown in **FIG. 4**."

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,440,796 to Deggau et al in view of EP 764482 to Ohya et al.

Deggau et al teach forming an annular member from a metal sheet by rotating a disk of metal sheet clamped between the dies (2, 2') that is not subjected to the metal working processing that the outer periphery is subjected to, pressing the outer periphery of the material in a radially inward direction while rotating the metal sheet, thickening the outer periphery by pressing, protruding the outer periphery to either side of the clamped portion, and forming a peripheral wall (44) to either side of the clamped portion.

However, Deggau et al do not teach forming the annular (disc-shaped) member to have a non-processed portion prior to pressing the outer periphery, including a inclined step portion, nor pressing the outer periphery without buckling.

Ohya et al disclose a method of forming an annular member, in which a disc-shaped metal sheet having a non-processed portion including inclined stepped portions is provided prior to the step of radially pressing the outer periphery of the metal sheet.

The invention seeks to avoid buckling on a thin disk from occurring when pressing a thickened portion (col 2, lines 24-33). A metal disc (1) is clamped between dies (2,3) and radial pressed. The dies included a groove having inclined surface which when clamped together, bend the metal disk in a direction along the inclined surface (cols 2-3, lines 38-3, esp. 44, 59). "Moreover, since the metallic disc material 1 is clamped by the dies 2 and 3 via the **stepped portion 1b**, it is possible to prevent the whole metallic disc material from being distorted due to stress during the thickened-portion molding" (col 8, lines 53-57).

Regarding claim 1, it would have been obvious to one of ordinary skill in the art, at the time of invention, to have formed the annular member having a non-processed portion including a inclined stepped portion prior to pressing the outer periphery in the method of Deggau et al, in light of the teachings of Ohya et al, in order to prevent buckling.

Regarding claim 2, Figure 2b of Deggau et al shows a thickening operation such that a preliminary peripheral wall is formed having a center portion that is more outwardly swelled in the center than at the ends. The shape of the outer periphery can be considered arc-shaped.

Regarding claim 3, Figure 2b of Deggau et al shows the thickening operation in which the outer periphery has a bead (12) that can be considered substantially circular. Note, it is inherent that roller (21) is engaged gradually; therefore the bead begins taking on a substantially circular shape in advance of forming of a preliminary peripheral wall.

Regarding claim 4, Figure 2b of Deggau et al shows the metal sheet (1) held between a pair of dies (2, 2') of a rotational drive tool and pressing a forming roller (21) against the outer periphery of the metal sheet. The forming roller and the metal sheet are thereby rotated together.

Regarding claim 5, Figure 2b of Deggau et al shows a thickening operation such that a preliminary peripheral wall is formed having a center portion that is more outwardly swelled in the center than at the ends. The shape of the outer periphery can be considered arc-shaped.

Regarding claim 6, Figure 10 of Deggau et al shows a finishing step that results in a protruding peripheral wall on either side of the clamped portion in a predetermined shape.

Regarding claim 8, Ohya et al disclose that the stepped portion is formed before the pressing step.

5. Claims 1-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,396,787 to Kanemitsu et al in view of EP 764482 to Ohya et al.

Kanemitsu et al disclose a method of forming an annular member, comprising the steps of: forming a disc-shaped sheet to have a non-processed portion including a stepped portion (Figure 4); rotating the disc-shaped metal sheet material; pressing the outer periphery of the sheet metal sheet in a radially inward direction, while continuing to rotate the metal sheet material (Figure 1B); thickening the outer periphery axially and without bucking by said pressing (Figure 1C); protruding the outer periphery to either

side of the non-processed portion of the metal sheet material (Figure 1D); and forming a peripheral wall protruding to either side of the non-processed portion (Figure 1E).

However, Kanemitsu et al do not explicitly disclose why the step-shaped portion is used, and Applicant argues that it is not clear from the disclosure of Kanemitsu et al whether the step-shaped portion is formed before or after pressing.

Ohya et al disclose a method of forming an annular member, in which a disc-shaped metal sheet having a non-processed portion including inclined stepped portions is provided prior to the step of radially pressing the outer periphery of the metal sheet. The invention seeks to avoid buckling on a thin disk from occurring when pressing a thickened portion (col 2, lines 24-33). A metal disc (1) is clamped between dies (2,3) and radial pressed. The dies included a groove having inclined surface which when clamped together, bend the metal disk in a direction along the inclined surface (cols 2-3, lines 38-3, esp. 44, 59). "Moreover, since the metallic disc material 1 is clamped by the dies 2 and 3 via the **stepped portion 1b**, it is possible to prevent the whole metallic disc material from being distorted due to stress during the thickened-portion molding" (col 8, lines 53-57).

Regarding claim 1, it would have been obvious to one of ordinary skill in the art, at the time of invention, to have formed the annular member having a non-processed portion including a inclined stepped portion prior to pressing the outer periphery in the method of Kanemitsu et al, in light of the teachings of Ohya et al, in order to prevent buckling.

Regarding claim 2, Figure 1C of Kanemitsu et al shows a thickening operation such that a preliminary peripheral wall is formed having a center portion that is more outwardly swelled in the center than at the ends. The shape of the outer periphery can be considered arc-shaped.

Regarding claim 3, Figure 1C of Kanemitsu et al shows the thickening operation in which the outer periphery has a bead that can be considered substantially circular. Note, it is inherent that a roller is engaged gradually, therefore the bead begins taking on a substantially circular shape in advance of forming of a preliminary peripheral wall.

Regarding claim 4, Figure 2A-2D of Kanemitsu et al shows the metal sheet held between a pair of dies and pressing a forming roller (21) against the outer periphery of the metal sheet. The forming roller and the metal sheet are thereby rotated together.

Regarding claim 5, Figure 2B of Kanemitsu et al shows a thickening operation such that a preliminary peripheral wall is formed having a center portion that is more outwardly swelled in the center than at the ends. The shape of the outer periphery can be considered arc-shaped.

Regarding claim 6, Figure 2D of Kanemitsu et al shows a finishing step that results in a protruding peripheral wall on either side of the clamped portion in a predetermined shape.

Regarding claim 8, Ohya et al disclose that the stepped portion is formed before the pressing step. Furthermore, Kanemitsu et al teach first forming the non-processed section into a stepped portion as disclosed in column 2, lines 61-67: "First there is prepared a steel plate 1 the peripheral portion of which has a flat section as shown in

FIG. 1A. Generally, the steel plate **1** is a disc-like plate as shown in **FIG. 3** and has a thickness of 2.0 mm for example. Alternatively, the steel plate **1** may be a flanged cup-shaped member as shown in **FIG. 4.**"

Response to Arguments

6. Applicant's arguments filed on July 11, 2002, have been fully considered but they are not persuasive for the new grounds of rejection cited above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Prior Art References

The prior art references listed on the enclosed PTO-892, but not used in a rejection of the claims, are cited for their teachings of manufacturing an annular member.

US Patent 5,737,955 to Ohya et al is an equivalent of EP 0 764 482.

US Patent 4,749,375 to Guevel et al also discloses forming an inclined step portion prior to pressing.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Compton whose telephone number is (703) 305-0240. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory M. Vidovich can be reached on (703) 308-1513. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

Application/Control Number: 09/157,318

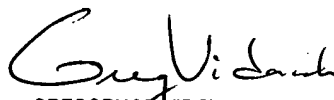
Page 11

Art Unit: 3726

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.

ebc

September 9, 2002


GREGORY M. VIDOVIKH
PRIMARY EXAMINER
SPE AU 3726